

## RUPTURED CRUCIAL LIGAMENTS AND THEIR REPAIR BY OPERATION.<sup>1</sup>

BY A. W. MAYO ROBSON, F.R.C.S.,

OF LEEDS,

Consulting Surgeon to the General Infirmary at Leeds.

AT first sight it would appear that an accident capable of rupturing the crucial ligaments of the knee would lead to complete disorganization of the joint; but the case that I am about to relate demonstrates not only that the crucial ligaments may be ruptured without serious damage to the joint as a whole, but that their repair by operation is both feasible and hopeful as to its ultimate result.

J. B., aged forty-one years, a miner, residing at Featherstone, was admitted to the General Infirmary at Leeds, November 4, 1895, on account of lameness from weakness and instability of the right knee, resulting from an accident when at work in a coal-pit thirty-six weeks before, when he was almost buried by a fall of earth, and sustained, besides the injury in question, a fracture of the left leg and of three ribs on the left side as well as internal injuries. After being in a neighboring hospital for six weeks he was made an out-patient, but returned in a fortnight on account of the right knee, which kept him in hospital for another six weeks, at the end of which time it was, he says, no better.

When admitted to the Leeds Infirmary, the knee was swollen but free from tenderness on manipulation. When the muscles were braced up, the bones were in good position, but as soon as the muscles relaxed, the tibia fell backward until stopped by the ligamentum patellæ. On manipulation the head of the tibia could be brought forward in front of the femur, and there was also very free lateral movement of the head of the tibia on the femur; some fluid in the joint could be felt and the patella floated. It

---

<sup>1</sup> Read at the Clinical Society of London, December, 1902.

was manifest that not only were all the ligaments relaxed, but that the crucial ligaments had been ruptured.

Operation, November 21. The joint was opened by an incision starting at the most prominent part of the internal condyle and passing downward and outward, crossing the ligamentum patellæ about the middle and extending upward to the prominence of the external condyle. On opening the joint the synovial membrane was found red and injected, and there was an excess of synovial fluid. Both crucial ligaments were found completely ruptured, being torn from their upper attachments, the ends being in a somewhat shreddy condition. They were stitched in position by means of catgut ligatures, the anterior being stitched to the synovial membrane and tissues on the inner side of the external condyle, and the posterior, which was too short and was split in order to lengthen it, was fixed by sutures to the synovial membrane and cartilage on the outer side of the inner condyle. The wound was then stitched up by means of buried catgut sutures and was closed superficially by interrupted silkworm-gut sutures.

Some pain followed the operation, and there was effusion into the joint, but on removing a stitch a little serous fluid escaped and relieved tension, the after progress being uneventful.

December 4. Stitches removed. Edges firmly healed; there was still considerable swelling in the neighborhood of the knee.

December 14. Plaster of Paris was applied, and he was allowed to get about on a Thomas' splint and to go home. The plaster was removed in a month, after which articular movement gradually returned under treatment by massage.

At my request, my house surgeon, Mr. W. Gough, visited him on October 24, 1901, and gave me the following report. The patient describes his leg as "perfectly strong." He walks well without a limp and can run. He works eight hours a day at his old employment of "getting" coal, and has never been off work a day on account of his knee since his discharge from the Infirmary. He has no pain in the knee except when he has overworked it, when he has a little aching over the inner side of the joint. There have been no attacks suggestive of a loose cartilage.

On inspection the scar of the old incision is seen. The joint looks fuller than the other and the outlines are rather blurred, the fossæ on either side of the patella being shallower than normal.

Measurement showed practically no difference in the circumference of the joints. There is no tenderness over the joint.

Movements. No abnormal mobility whatever is present. Extension to the straight line is perfectly free. Flexion is somewhat limited, but the knee can be flexed to just beyond a right angle quite freely, when it becomes fixed, and any attempt at further flexion causes pain over the outer side of the joint. On flexion and extension fine creaking is felt in the joint. The patient says the joint is more liable to pain him in cold, damp weather.

*Remarks.*—As a rule, I do not care for reporting a single example of any disease or injury, but having waited seven years without another case of ruptured crucial ligaments coming under my observation, I think the time has come for the publication of this one, especially as I am able to give a report of the condition so long after operation. A search through surgical literature has not rewarded me in discovering any other case in which these deeply placed and strong ligaments have been repaired; this therefore will, I trust, be a sufficient excuse for my contribution, as it clearly demonstrates the hopefulness of operation in so serious an injury.

Since reporting the above case I find another case was operated on August 5, 1898; the woman was shown at the Clinical Society February 23, 1900, the result being quite satisfactory.

[Mr. William H. Battle, in the British Medical Journal of December 13, 1902, refers to Vol. xxxiii of the Transactions of the Clinical Society of London, p. 232, where is described a suture of the crucial ligaments as a part of the procedures adopted in the treatment of an irreducible traumatic dislocation of the knee-joint in which an open section was made. This was done August 5, 1898. The result was good.—EDITOR.]